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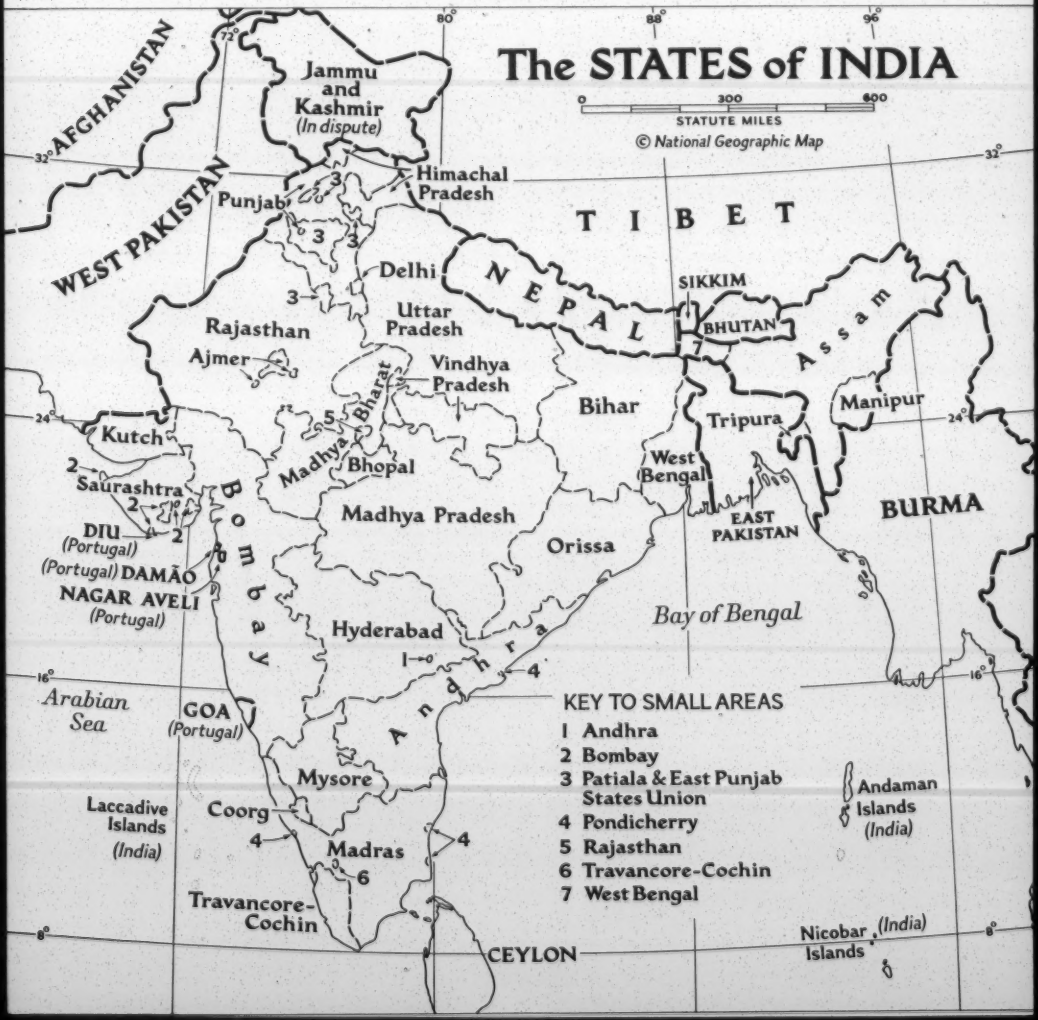
NEW SCHOOL IN A NEW COUNTRY—The Indian Government of Nehru (above) Supplies Eager Students with Slates, Workbooks, and Teachers for Village Classes

I.C.A. (BELOW) AND EMBASSY OF INDIA

This collision of old and new is only one of India's problems. Others shout for attention in the nine-year-old nation. Settled during centuries of invasion and conquest, India contains a wide variety of races, religions, castes. Its people speak 14 main languages, many dialects. Some 375,000,000 of them, more than twice the population of the United States, crowd a land less than half as big.

When India obtained freedom, in August, 1947, more than 500 princely states began dissolving old boundaries, merging to form 29 administrative units. Prime Minister Jawaharlal Nehru has suggested further mergers so that states would band together those who speak the same language. Bitter opposition has prevented this move. At present, the republic appears as shown below—far less complex than the jig-saw-puzzle map of British India.

Walled in to the north by the Himalayas, the Indian Peninsula tapers toward the Equator. Densest settlement is along the fertile Ganges basin, running east and west across the top of the triangle. Southward, the



EMBASSY OF INDIA

India TODAY

In days of the British *raj*, northern India's crumpled hill country at the foot of the giant Himalayas offered English administrators respite from heat. Today, the new India has other plans for its northern regions.

Not far from Simla, where the viceroy used to spend his summers, Indians are building the Bhakra-Nangal dam, slated to be the world's third highest. Already, water roars through a diversion tunnel, above.

India's dam and irrigation projects aim at putting more land into production, controlling floods, generating electric power. Yet many methods remain timeless. The sight of burdened man power doing work of machines (inset) typifies India's struggle toward modernity.

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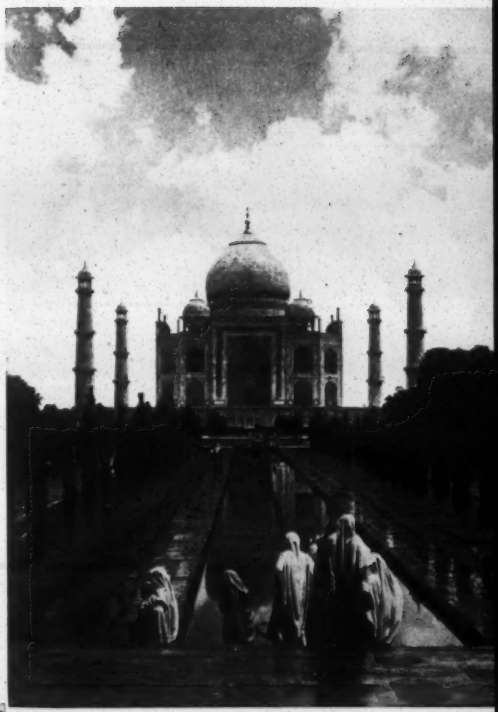
TAJ MAHAL, SYMBOL OF OLD INDIA
Mogul Ruler Raised "Earth's Finest Building" in Agra as a Tomb for His Wife



JACK R. WALKER

In thousands of tiny settlements the projects have been breaking up what Prime Minister Nehru calls "a mountain of inertia." A few bulldozers and graders (American money helped pay for them) snarl through patches of useless jungle, clearing trees, draining marshes. Crews of villagers, stripped almost naked, bend to their shovels along routes of new irrigation canals. Western farm experts demonstrate tractors, and teach properties of newly distributed fertilizers.

Schools, hospitals, education centers for adults, village roads, are all being built or improved under the projects. Farmers learn about soil surveys, marketing, credit. Veterinarians check livestock. More than 60,000,000 Indians have felt the impetus of this program. Food production has risen by 20 percent.

ALEXANDER KARCZYNSKI

The ways of the past still lie heavy upon the Indians. But a new future calls.

National Geographic References

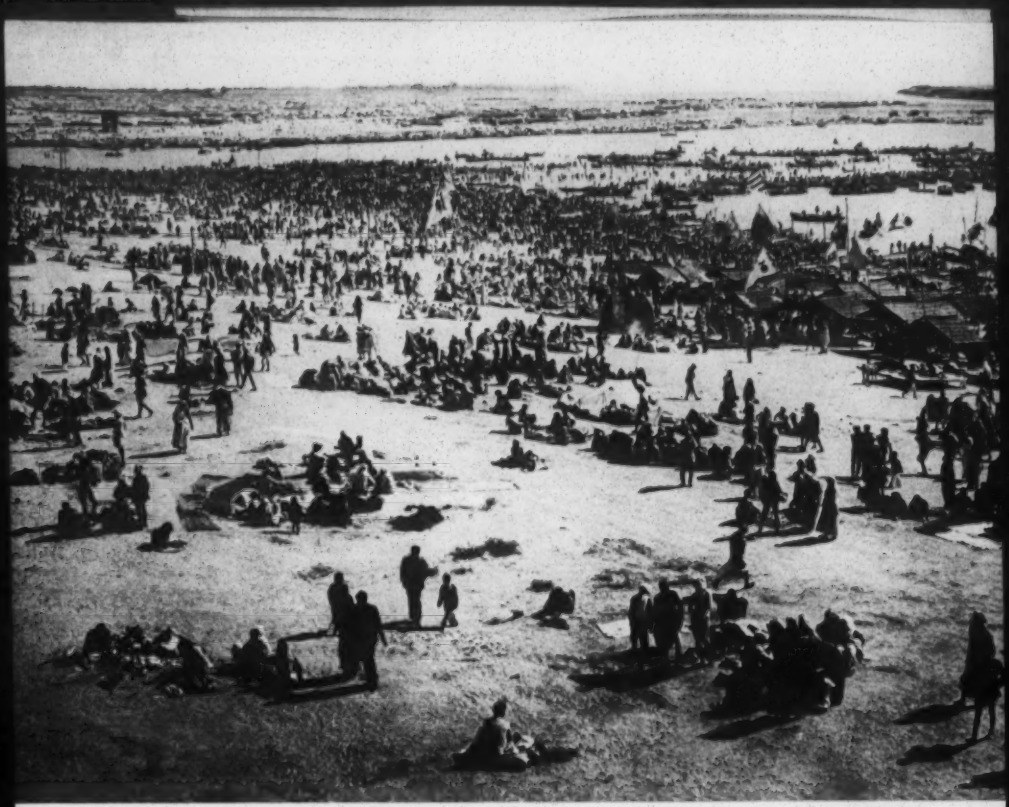
Map—Southwest Asia (paper 50¢, fabric $1)

Magazine—Apr., '56, "New Life for India's Villagers" (75¢; 55¢ when ordered by schools or libraries); Nov., '47, "Delhi, Capital of a New Dominion" (75¢)

School Bulletins—May 16, '55, "Rivers of the World: The Ganges"; Mar. 21, '55, "India, Home of the Tiger, Encourages Lions"; Nov. 22, '54, "Modern India Seeks Best from Two Worlds"; Mar. 22, '54, "Ganges River Cleanses Hindu Souls" (each 10¢)

Separate Color Sheets—16 sheets containing 29 pictures of India (send for price list)

LATE EDITION HITS BOMBAY STREET
Stores, Theaters, Open Streetcars, and News Vendors Cater to City's 3,000,000



WIDE WORLD

HINDU HORDES BATHE IN HOLY WATERS—Every 12 Years the *Kumbha Mela* Ceremony Draws Millions of the Faithful to Allahabad, Meeting of Ganges and Jumna Rivers

Vindhya Hills mark the beginning of the Deccan, hot, arid plateau covering southern India. Crops—mostly rice and wheat—depend on the monsoon which sweeps in from the Indian Ocean in June bringing life-giving rains. It ends the three-month hot season when blazing sun sears the peninsula. If the monsoon fails, harvests are light and millions of stomachs go empty. Heavy torrents can wash away crops and top soil.

Out of every ten Indians, eight are farmers, eight are unable to read or write, nine are underfed. Though Bombay and Calcutta are teeming cities and Delhi is a showcase national capital, more than one-half *million* villages, many consisting of crude huts, house most of India's hordes. Some 150,000,000 cattle, the highest bovine population in the world, graze on sparse pastures and give only twice as much milk as Canada's 10,000,000. Religion—and law—bar slaughtering them. Generally speaking, Indians eat no meat. They live largely on rice and vegetables, flavored with curry.

India's constitution, using many ideas from the United States Constitution, stresses equality of all men, abolishes "untouchability." Its first Five Year Plan, which ended April 1, aimed at improving health and education, developing natural resources and industries, particularly increasing food production. One feature, Community Development Projects, is designed to hoist individual villages out of backwardness by their bootstraps.

piece (1336). With new works, it still tells time at Wells Cathedral.

Swinging pendulums controlled the wheels that moved the hands of early clocks. Too large to be used in houses, they generally were placed in towers of public buildings. Big Ben (above), in the tower of Parliament at Westminster, has given Londoners the hour since 1858. Thousands of clocks echo its chimes in homes all over the world.

The first clock small enough to be used in a home was devised about 1460, but mechanical clocks were not in general use until the 18th century. Early clocks were expected to entertain as well as inform. Many indicated not only those impatient twins, time and tide, but signs of the zodiac, phases of the moon, and day, week, and month. In more elaborate timepieces figures of knights in armor paraded past a bell, striking it with a battle-ax. Or perhaps St. George pursued the dragon, or the Twelve Apostles passed gravely by. A modern note is the cuckoo's. Whole families in Germany's Black Forest region make these wall clocks.

It was not until a spring control (top picture) was contrived that portable timepieces could be made. Small ones were called watches because they were carried by watchmen. Today some are as small as a match head, others can pass through the teeth of a comb. Clocks and watches had a single hand until the 17th century and for some time thereafter minute-hand users were considered not quite bright. Now Hamilton's time zone watches have additional hands telling what time it is anywhere in the United States.

RALPH GRAY, NATIONAL GEOGRAPHIC STAFF

Montreal's Great Floral Clock Says It with Flowers: Time Flies

UMI

ELGIN NATIONAL WATCH CO.

Everyday Wonders, No. 7

Clocks and Watches

NATIONAL GEOGRAPHIC PHOTOGRAPHER B. ANTHONY STEWART

When you say "What time is it?" do you ever stop to wonder what time *is*? It's a long way from the caveman's timepiece—a stake driven into the ground for a sundial—to a slim gold disk made up of dozens of tiny pieces (below).

Babylonians, Egyptians, Greeks improved the sundial but it still was useless on cloudy days. Later, people used fire to tell time; they burned knotted ropes or candles marked with ridges. Some candles had metal balls inserted at intervals. When the flame reached the pellets, they fell onto a metal plate, striking the hour.

Incas employed a water clock. It marked time by the flow of water from one container to another, just as sand trickles through the hourglass to time a three-minute egg.

Monastery bells tolled the hour in the Middle Ages. Monks who rang them helped develop clocks. Peter Lightfoot of Glastonbury Abbey in England is credited with the first weight-driven time-

At last home hove in sight. Returning prodigals celebrated with mates who had been keeping house and minding eggs. Bows, hisses, and trumpeting duets ensued. A trying day was over.

Waiting to spell their mates at "egg-sitting," loafing penguins stole nest scraps from dozing neighbors. Finally a victim would catch the thief in the act, and attack with flippers and beak.

Despite excitements, eggs hatched. Fluffy youngsters grew to adolescence, learning discipline from parents (right).

Bursting with curiosity, "teen-agers" surrounded the author, poking into camera equipment. But the sight of his shaving mirror distracted the birds. Shoving and elbowing each other, they crowded for a look at themselves. Glimpsing its reflection, a young gentoo would try to grab it in its beak, knock the mirror over and spend minutes searching the sand for the lost image.

To "get away from the neighbors" in a place where he could review his work at peace, Dr. Pettingill fitted out the shed below, provided for him as a "donation to science" by Falkland sheep raisers.

UMI

Sketches from the Geographic's Global Notebook

Life Among Falkland Penguins

Illustrations by Olin S. Pettingill, Jr.

On a lonely island in the wind-swept South Atlantic, a scientist introduces himself to his neighbors (above). The man is Dr. Olin S. Pettingill, Jr., teacher of ornithology, lecturer, and wildlife photographer. His new friends are gentoo penguins of remote Falkland Islands.

Dr. Pettingill visited this bleak British colony to film scenes for a new Walt Disney True Life Adventure and to do the story which appears in the March issue of *The National Geographic Magazine*. From an isolated vantage point he watched daily life of the gentoo during the nesting season.

Most came ashore in groups in late afternoon, porpoising through surf with leaps and dives, finally exploding out of breakers at bullet speed to ground on the beach. Picking themselves up, the birds waddled to dry land, brushing sand from gleaming coats, hurrying forward like tail-coated commuters arriving late at the station.

Their colony adjoined the beach, but the penguins scrupulously stuck to a long, meandering trail, tamped down by generations before them. At every obstacle each bird would pause to puzzle out the best route—as though each familiar rock or gully were a complete surprise. It took each group about an hour to reach the nesting colony.

Nests lay so close together that returning wayfarers had to thread among them, getting irritable pecks from neighbors already nesting. This harsh greeting discomfitted the new arrivals. Dignity shattered, they scuttled and dodged through the gantlet, seeking their own nests.

CHICAGO AND NORTH WESTERN RAILWAY

"Santa Fe All the Way" says the famed Atcheson, Topeka, and Santa Fe, only line to stretch from Chicago to California under one management. Its boxcars carry a map to emphasize the point. The Santa Fe's trade-mark is a cross in a circle, with, more recently, an Indian head added to advertise the crack Super Chief streamliner.

When the Seaboard railroad set out to advertise its time-saving straight-line run from Richmond, Virginia, to Jacksonville, Florida, it pounced on the catchphrase "Air Line," not realizing it was seeing into the future. And when an executive of the Northern Pacific saw the monad symbol of Korea at Chicago's Columbian Exposition in 1893, he got it adopted as the line's trade-mark, not knowing that within 60 years the Korean flag would become familiar to Americans (next page).

The Southern Pacific's "side-door Pullmans" wear a sunset. The Florida East Coast's symbol is a sunrise. One of the earliest railroad insignia, the Great Northern's mountain goat, reminds viewers that the line's top scenery is at Montana's Glacier National Park. The mighty Pennsylvania Railroad is content with a simple keystone. The midwest's Rock Island carries only its name—but the line is remembered in a folksong.

Scan a freight yard like the one above and check the slogans and insignia on the freight cars gathered there. They come from all corners of the nation. Some seem lost and forgotten by their owners.

Thanks to intricate paper work, none are lost. That boxcar from the other side of the continent may have been loaded months ago with freight for Chicago. When it left its home line its number was recorded on an interchange report. In railroad parlance it became a "foreigner."

UMI

Railroad Emblems: American Heraldry

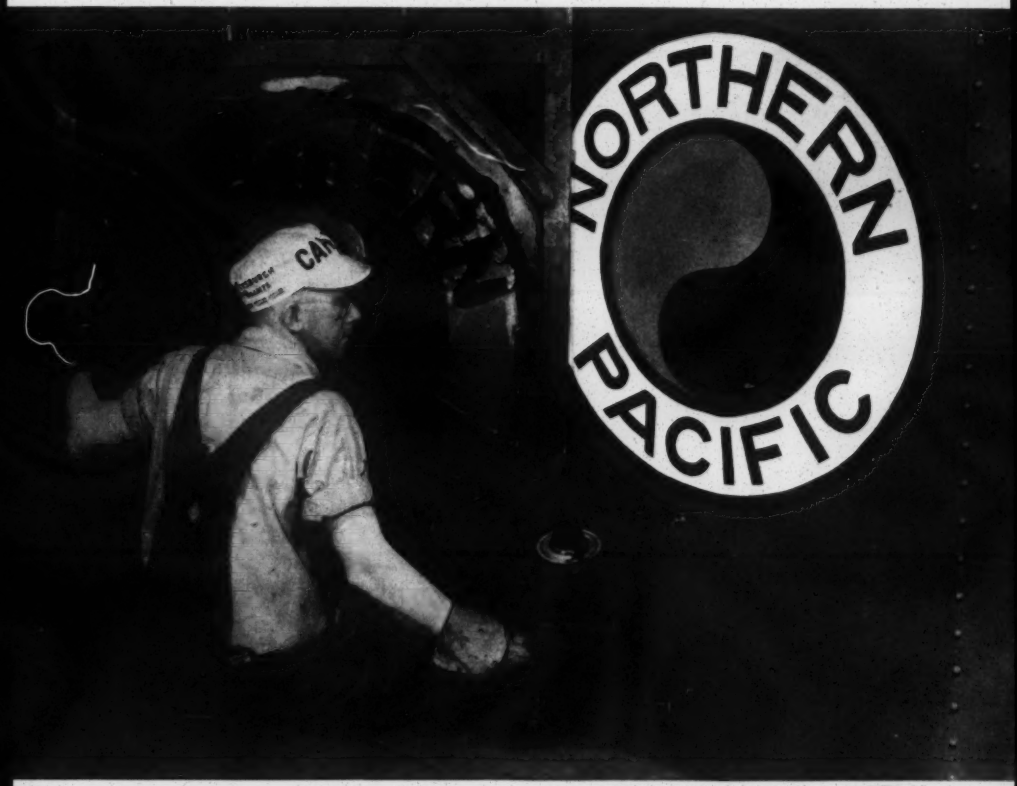
RALPH GRAY, NATIONAL GEOGRAPHIC STAFF

Dressed for the part, young Casey Jones adjusts a Missouri, Kansas, and Texas boxcar before coupling it to a string of freight headed for the dining room. His ornamental shirt displays heraldry —American style. Railroad insignia, daubed on the flanks of some 1,830,000 United States freight cars, combine history, legend, and geography just as did the escutcheons of medieval knights.

To the railroad lover, the sight of a weather-beaten Santa Fe boxcar clattering over a New England crossing is as stirring as the nighttime whistle of a distant freight. "Serves the South" proclaims the symbol of a Southern Railway car. To see it festooned with Wisconsin snow conjures up a picture of the miles it covers.

Some railroad symbols have patriotic themes. A minuteman adorns the Boston and Maine seal, the Statue of Liberty marks the Jersey Central Line. The Union Pacific has its red, white, and blue shield. The Capitol dome emblazons some Baltimore and Ohio diesels. This oldest standard gauge in the United States, also boasts a slogan: "Linking 13 Great States with the Nation." Other lines use mottoes, catchwords.

Chessie the kitten sleeps peacefully on all C and O Pullmans. The Lackawanna calls itself "The Route of Phoebe Snow," referring to a fictitious lady once used to advertise the cleanliness of travel behind the Lackawanna's sootless, anthracite-burning engines. Now, even anthracite has given way to diesel power on most lines and Phoebe has been remodeled from a gay-nineties Gibson girl. But the slogan sticks. So does "The Route of the 400," which adorns the Chicago and North Western Railway. It indicates that a streamliner makes the 400-mile run to Minneapolis and St. Paul in 400 minutes.



NATIONAL GEOGRAPHIC PHOTOGRAPHER JOHN E. FLETCHER

READY FOR THE RAILS—Stencils and Spray Paint Give This New Northern Pacific Boxcar Its Last Touch—the Monad Emblem

Every time that car moved from one line to another a new report was circulated. Its owners were kept informed of its progress as it moved toward its destination.

At Chicago, the car was unloaded, shunted to a string that was headed back home, and left to await reloading. Then a change of plan brought a new assignment to the boxcar. The local line needed it to haul a consignment south. Away rattled the foreigner, now earning $2.40 a day in rental.

Perhaps it stayed on southern lines for months, undergoing repairs when necessary, doing the jobs that were given it. Perhaps, when you see it at your local siding and marvel at its distance from home, it has been away for a year or more.

But don't worry—it isn't forgotten. Its owners know its complete history. One of these days it will get a homeward-bound cargo and rumble away to rejoin its own line, to tell its adventures in its own freight yard.

PRR
Santa Fe
LINKING 13 GREAT STATES WITH THE NATION
B&O